KEY MESSAGES

1. Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterised by impairments in communication, behaviour and social functioning which begin in childhood.

2. Early diagnosis and prompt intervention of children with ASD is crucial for the best outcome.

3. Modified Checklist for Autism in Toddlers (M-CHAT) may be used as a screening tool for ASD among children of 18 months and repeat at 24 months if the child passes the earlier M-CHAT.
   - It may be used to screen children up until the age of 30 months if the child misses the earlier screening.
   - Regardless of the screening result, children suspected of ASD at any age by the family or other care providers should be referred for evaluation.

4. Diagnosis of ASD should be made clinically, based on comprehensive history and observation.

5. Audiological assessment should be performed in children with or suspected of ASD.

6. Children with ASD should be managed by a multidisciplinary team.

7. Parents or carers should actively participate in any intervention offered to children with ASD.

8. Children with ASD should receive:
   - Applied behaviour analysis
   - Speech, language and communication interventions
   - Occupational therapy

9. Parental training should be offered to parents of children with ASD.

10. Traditional and Complementary Medicine could not be recommended to children with ASD because of insufficient evidence and potential harmful effects.

This Quick Reference provides key messages and a summary of the main recommendations in the Clinical Practice Guidelines (CPG) on the Management of Autism Spectrum Disorder in Children and Adolescents.

Details of the evidence supporting these recommendations can be found in the above CPG, available on the following websites:

- Ministry of Health Malaysia: www.moh.gov.my
- Academy of Medicine Malaysia: www.acadmed.org.my
- Malaysian Psychiatric Association: www.psychiatry-malaysia.org

Clinical Practice Guidelines Secretariat
Malaysian Health Technology Assessment Section (MaHTAS)
Medical Development Division
Ministry of Health Malaysia
Level 4, Block E1, Precinct 1, 62590, Putrajaya
Tel: 603-8883 1246, E-mail: htamalaysia@moh.gov.my
Risk Factors

Screening for ASD should be emphasised in children with the following high risk factors:-

• Increased parental age
• Maternal age >40 years old
• Paternal age >50 years old
• First born of mother aged >35 years old and father aged >40 years old

Main Features of ASD

A. Persistent deficits in social communication and social interaction across multiple contexts.

B. Restricted, repetitive patterns of behaviour, interests, or activities.

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

Comorbidities

• Children with ASD can experience a wide range of difficulties with emotional, attentional, activity, thought, behavioural and medical problems.

• Diagnosis of comorbid disorders is of major importance as it may cause significant clinical impairment in children with ASD.

• The comorbidities are:

  a) Intellectual disabilities
  
  b) Attention deficit hyperactivity disorder (ADHD)
  
  c) Sleep disorders
  
  d) Epilepsy
  
  e) Gastrointestinal problems such as feeding problems and constipation
  
  f) Motor incoordination such as poor handwriting
  
  g) Other psychiatric disorders such as anxiety and depressive disorder
Audiological Evaluation

- Audiological evaluation is an important component of initial assessment to rule out hearing impairment.

- The electrophysiological test is preferably used to evaluate hearing impairment in children with ASD as compared to behavioural test.

Treatment

i. Applied Behaviour Analysis (ABA)

Lovaas therapy and early intensive behavioural intervention variants improve among others, social communication skills, language and daily living skills, cognitive performance, language skills and adaptive behavioural skill.

ii. Speech, Language and Communication Interventions

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Types</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naturalistic approach</td>
<td>Responsive Education and Prelinguistic Milieu Teaching (RPMT)</td>
<td>Improves social communication &amp; language learning</td>
</tr>
<tr>
<td></td>
<td>Reciprocal Imitation Training (RIT)</td>
<td>Improves elicited &amp; spontaneous imitation of objects &amp; gestures (&lt;5 years old) with a greater play repertoire</td>
</tr>
<tr>
<td>Augmentative and Alternative Communication (AAC)</td>
<td>Picture Exchange Communication System (PECS)</td>
<td>Improves communication skills &amp; requesting skills</td>
</tr>
<tr>
<td></td>
<td>Speech Generating Device (SGD)</td>
<td>SGD with enhanced milieu teaching &amp; signing improves requesting skills</td>
</tr>
<tr>
<td>Video modelling</td>
<td>Video self-modelling</td>
<td>Improves social communication skills, functional skills &amp; behavioural functioning</td>
</tr>
<tr>
<td></td>
<td>Video modelling with other as model</td>
<td>Improves play skills, independent living &amp; social-communicative skills</td>
</tr>
</tbody>
</table>
iii. Occupational Therapy

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory integration therapy</td>
<td>Improves in sensory processing, motor skills, social functioning &amp; autistic mannerisms but further study required to support current findings</td>
</tr>
<tr>
<td>Social skills and self-help skills</td>
<td>Improves overall social competence &amp; friendship quality</td>
</tr>
<tr>
<td>Joint attention</td>
<td>Improves joint attention &amp; joint engagement</td>
</tr>
<tr>
<td>Perceptual motor training</td>
<td>Increases attention span</td>
</tr>
</tbody>
</table>

iv. Other Interventions

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Stories</td>
<td>Improves social skills &amp; reduces inappropriate behaviours</td>
</tr>
<tr>
<td>Developmental, Individual-difference, Relationship-based (DIR) Floortime™</td>
<td>Improves developmental skills &amp; reduces autistic symptoms</td>
</tr>
<tr>
<td>Music therapy</td>
<td>Improves joint attention skills &amp; longer eye contact</td>
</tr>
<tr>
<td>Parent education and support</td>
<td>Improves parent-child interaction, parent synchrony, child’s language comprehension &amp; functional verbal utterances</td>
</tr>
</tbody>
</table>

v. Pharmacotherapy

- Children with ASD may be offered:
  - atypical antipsychotics as a short-term treatment for irritability
  - methylphenidate and atomoxetine for hyperactivity
  - melatonin for sleep difficulties

Social Welfare Service

Children with ASD should be referred to the Department of Social Welfare at their respective local districts. This will enable the child to be registered for social welfare benefits.

Transition from Adolescent to Adult Services

- Transition for adolescents with ASD should be discussed and planned early by all who are involved in their management.

- Care for children and adolescents with ASD should be continued to adult health services. There is a need for establishment of this service to support adolescents when they enter adulthood.
**Modified Checklist for Autism in Toddlers (M-CHAT)**

**Answer ALL questions. Circle the appropriate answer.**

**Jawab SEMUA soalan. Bulatkan jawapan yang sesuai.**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Yes / Yes</th>
<th>No / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adakah anak anda seronok apabila ditimang, dibuai atau dihentut atas kaki / paha dan sebagainya? (Does your child enjoy being swung, bounced on your knee, etc?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>2</td>
<td>Adakah anak anda menunjukkan minat terhadap kanak-kanak lain? (contohnya bergaul, bermain, berkawan) (Does your child take an interest in other children?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>3</td>
<td>Adakah anak anda suka memanjat, contohnya tangga, kerusi, mej dan lain-lain? (Does your child like climbing on things, such as up stairs?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>4</td>
<td>Adakah anak anda seronok bermain &quot;cak-cak&quot; atau main sorok-sorok? (Does your child enjoy playing peek-a-boo or hide and seek?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>5</td>
<td>Adakah anak anda pernah bermain-main olok-olok / berlakon, contohnya menelpon, bermain anak patung atau bermain masak-masak dan sebagainya? (Does your child ever pretend for example to talk on the phone or take care of dolls or pretend other things?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>6</td>
<td>Adakah anak anda pernah menunjuk menggunakan jari telunjuk untuk meminta sesuatu? (Does your child ever use his / her index finger to point, to ask for something?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>7</td>
<td>Adakah anak anda pernah menunjuk / menggunakan jari telunjuk terhadap sesuatu yang menarik minatnya? (Does your child ever use his / her index finger to point, to indicate interest in something?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>8</td>
<td>Bolehkah anak anda bermain dengan alat permainan yang kecil dengan betul, selain dari memasukkannya ke dalam mulut, membelek-belek atau menjatuhkan permainan itu? (contohnya kuib, kereta kecil, dan lain-lain) (Can your child play properly with small toys without just mouthing, fiddling or dropping them?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>9</td>
<td>Pernahkah anak anda membawa objek / benda dan menunjukkannya kepada anda? (Does your child ever bring objects over to you (parent) to show you something?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>10</td>
<td>Adakah anak anda bertentang mata dengan anda lebih daripada dua saat? (Does your child look you in the eye for more than a second or two?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>11</td>
<td>Pernahkah anak anda kehilatan seperti tersangat sensitif / terganggu terhadap bunyi bising (contohnya: menutup telinga)? (Does your child ever seem oversensitive to noise? (e.g. plugging ears))</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>12</td>
<td>Adakah anak anda senyum bila melihat anda atau membalas senyum anda? (Does your child smile in response to your face or your smile?)</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>13</td>
<td>Adakah anak anda meniru perlakuan anda (contohnya meniru mimik muka anda dan sebagainya)? (Does your child imitate you? (e.g. if you make a face will your child imitate it?))</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>No.</td>
<td>Question</td>
<td>Yes / No</td>
<td>Tidak / No</td>
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</tr>
<tr>
<td>14</td>
<td>Adakah anak anda bertindak balas apabila namanya dipanggil?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>15</td>
<td>Sekiranya anda menunjuk pada alat permainan yang jauh dari anda, adakah anak anda akan melihat kepada alat permainan tersebut?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>16</td>
<td>Bolehkah anak anda berjalan?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>17</td>
<td>Adakah anak anda akan melihat pada benda yang sedang anda lihat?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>18</td>
<td>Adakah anak anda membuat pergerakan jari yang ganjil / pelik dekat mukanya?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>19</td>
<td>Adakah anak anda cuba menarik perhatian anda terhadap aktiviti yang dilakukannya?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>20</td>
<td>Pernahkah anda terfikir bahawa anak anda ada masalah pendengaran?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>21</td>
<td>Adakah anak anda dapat memahami percakapan orang?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>22</td>
<td>Adakah anak anda kadang-kala kelihatan temenung atau merayau / berjalan tanpa tujuan?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
<tr>
<td>23</td>
<td>Adakah anak anda memandang ke muka anda untuk melihat reaksi / tindakabalas anda apabila ia menghadapi sesuatu yang baru atau luar biasa?</td>
<td>Ya / Yes</td>
<td>Tidak / No</td>
</tr>
</tbody>
</table>

2. No / Tidak  7. No / Tidak  12. No / Tidak  17. No / Tidak  22. Yes / Ya
5. No / Tidak  10. No / Tidak  15. No / Tidak  20. Yes / Ya

**Scoring:**
- The bold items are critical; i.e. 2, 7, 9, 13, 14, 15
- A child requires referral (i.e. fail M-CHAT) for further evaluation if he / she fulfills the following:
  - 2 or more of critical items
  - 3 or more of any items

Not all children who fail the checklist will meet criteria for a diagnosis on the autism spectrum disorder. However, children who fail the checklist should be evaluated in more depth by the relevant specialist.
Algorithm on Management of Children with Autism Spectrum Disorder

Growth and developmental assessment for children under six years of age at Maternal & Child Health Clinic

M-CHAT screening (at 18 and 24 months)*
  • to be completed by parents
  • assisted if necessary

Follow-up

Scoring** Refer Pg 6

Fail

Verification by Medical Practitioner

Diagnosis confirmed by Family Medicine Specialist / Paediatrician / Psychiatrist

Multidisciplinary Assessment and Management***

Referral from school / community / parent

Referral from Practitioners / Therapists

Speech-language therapy

Occupational therapy

Psychological / behavioural therapy

Education

Social welfare

Pharmacotherapy for comorbidities

Early intervention programme (EIP) is strongly advocated

* M-CHAT may be used to screen children up until 30 months of age if the child misses the earlier screening

**Regardless of the screening result, children suspected of ASD by the family or other care provider should be referred for evaluation

***Multidisciplinary Assessment and Management Team may include:
  • Family Medicine Specialist
  • Paediatrician
  • Psychiatrist
  • Clinical Psychologist
  • Occupational Therapist
  • Speech-Language Therapist
  • Audiologist
  • Medical Social Worker